DEGTYAREV, Aleksey Petrovich; TALLAKO, I.G., inzhener, nauchnyy redaktor; KRYUGER, Yu.V., redaktor izdatel'stva; EL'KINA, [illegible], tekhnicheskiy redaktor

[Excavation brigade management] Khozrashchet v ekskavatornykh brigadakh. Moskva, Gos.izd-vo lit-ry po stroit. i arkhit., 1957. 67 p. (MIRA 10:10)

(Earthwork)

DEGTYAREV, Aleksey Petrovich, inzh.; Prinimal uchastiye: AGURIN, A.P., inzh., REYSH, A.K., glavnyy inzh., nauchnyy red.; PAKHOMOVA, M.A., red.izd-va; STEPANOVA, E.S., tekhn.red.

[Engineer of excavating and hauling machinery] Mashinist zemleroino-transportnykh mashin. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1959. 206 p. (MIRA 12:9)

1. Proyekt Gosudarstvennogo proyektnogo instituta Spetsstroyproyekt (for Reysh).
(Excavating machinery) (Earthmoving machinery)

DEGTYAREV, A.P., inzh.

Ways of lowering costs of earthwork operations. Mekh.stroi. 17 no.7:18-20 Jl '60. (MIRA 13:7)

(Earthwork)

DEGTYAREV, A.P., inzh.; ROYZH, A.K., inzh.

Improving the maintenance of single-bucket excavators. Mekh. stroi. 18 no. 1:7-9 Ja '61. (MIRA 14:2)

1. Glavnyy inzhener tresta "Ukrekskavatsiya" (for Degtyarev).
2. Rukovoditel' laboratorii Vsesoyuznogo nauchno-issledovatel'skogo instituta stroitel'nogo i dorozhnogo mashinostroyeniya (for Royzh).

(Excavating machinery--Maintenance and repair)

BORISOV, Sergey Mikhaylovich, kand. tekhn. nauk; DEGTYAREV, A.P., inzh., retsenzent; GORYACHEVA, T.V., inzh., red.; DOBRITSYNA, R.I., tekhn. red.

[Single-bucket universal constrction excavators] Odnokovshovye universal'nye ekskavatory. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 210 p. (MIRA 14:9)
(Excavating machinery)

BRASLAVSKIY, Ye.M., inzh.; DEGTYAREV, A.P., inzh.

Working a rock excavation with scrapers. Mekh.stroi. 18 no.7:
19-23 Jl '61. (MIRA 14:7)

1. Trest Ukrekskavatsiya.
(Scrapers) (Excavation)

VOLODIN, Yevgeniy Petrovich; DEGTYAREV, Aleksey Petrovich, inzh.;
REYSH, Arvid Karlovich; TABUNINA, M.A., red. izd-va;
GOL'BERG, T.M., tekhn. red.

[Grading work] Greidernye raboty. Pod red. A.P.Degtiareva. Moskva, Gosstroiizdat, 1962. 222 p. (MIRA 15:7)
(Grading work)

DEGTYAREV, Aleksey Petrovich, inzh.; LUR'YE, Lev Iosifovich; REYSH,
Arvid Karlovich; SVIRSKIY, Viktor Aleksandrovich; TABUNINA,
M.A., red. izd-va; RUDAKOVA, N.I., tekhn. red.

[Bulldozer work]Bul'dozernye raboty. Pod red. A.P.Degtiareva.
Moskva, Gosstroiizdat, 1962. 212 p. (MIRA 15:12)
(Bulldozers)

DEGTYAREV, A.P., inzh.

Mechanization of earthwork in the Ukrekskavatsiia Trust.
Mekh. stroi. 19 no.9:8-9 S '62. (MIRA 15:9)
(Ukraine--Earthmoving machinery)

DEGTYAREV, Aleksey Petrovich; REYSH, Arvid Karlovich; TABUNINA, M.A., red. izd-va; TARKHOVA, K.Ye., tekhn. red.

[Scraper work]Skrepernye raboty. Moskva, Gosstroiizdat, 1962. 222 p. (MIRA 16:3)
(Scrapers) (Earthwork)

ASTAKHOV, A.I., inzh.; DEGTYAREV, A.P., inzh.; IVANOV, V.A., inzh.

Problem of the operational reliability of construction equipment.
Stroi. i dor. mash. 7 no.12:6-11 D '62. (MIRA 16:1)
(Construction equipment) (Road machinery)

ASTAKHOV, Aleksey Illarionovich; DEGTYAREV, Aleksey Petrovich, inzh.; DUBININ, V.I.; REYSH, A.K.; SHEVCHENKO, I.S.; TABUNINA, M.A., red.izd-va; GOL'BERG, T.M., tekhn. red.

[Excavator works] Ekskavatornye raboty. Pod red. A.P. Degtiareva. Moskva, Gosstroiizdat, 1962. 363 p.
(MIRA 16:5)

(Excavating machinery)

DEGTYAREV, A.P., inzh.; PETROV, A.P., inzh.

Swell the ranks of advanced excavator operators. Mekh. stroi. 19 no.8:2-3 Ag '62. (MIRA 16:7)

(Excavation)

DEGTYAREV, A.P., inzh., zasluzhennyy stroitel' UkrSSR

Competition of the excavation brigades of the Ukrainian Excavation Combine. Mekh. stroi. 20 no.8:2-4 Ag '63. (MIRA 16:11)

DEGTYAREV, A.P., inzh., zasluzhennyy stroitel' UkrSSR.

For a high annual output, for a better use of machinery. Mekh. stroi. 21 no.1:1-2 Ja '64. (MIRA 17:4)

YAKIMOV, M.A.; NOSOVA, N.F.; DEGTYAREV, A.Ya.; YUY TSYAN'-TSI [Yü Ch'ien-ch'i]

Interaction of components in the systems type $MeNO_3 - UO_2(NO_3)_2 - H_2O$.
Radiokhimiia 5 no.1:73-80 '63. (MIRA 16:2)
(Uranyl compounds)
(Nitrates) (Solubility)

L 41041-65 EWT(d)/EPF(n)-2/EWP(1) Po-4/Pq-4/Pg-4/Pae-2/Pu-4/Pk-4/Pl-4 IJP(c)
ACCESSION NR: AP5006285 S/0103/65/026/002/0333/0341 WW/BC

AUTHOR: Degtyarev, B. A. (Leningrad)

51
B

TITLE: Criteria of efficiency of functioning of multichannel systems

SOURCE: Avtomatika i telemekhanika, v. 26, no. 2, 1965, 333-341

TOPIC TAGS: functioning efficiency, automatic control, automatic control design, automatic control system, automatic control theory

ABSTRACT: A remote-control discrete multichannel system comprising a number of plants and a (random-input) control station is considered from the viewpoint of its functioning efficiency (FE). The characteristic feature of its reliability is the fact that a failure of some elements may cause only a partial loss of the system operability, not the system failure. All system elements are subdivided into two groups: (a) those causing the total system failure and (b) those only impairing the system operability. Two variants of system

Card 1/2

L 41041-65
ACCESSION NR: AP5006285

purposes are considered: (1) The system is intended for solving a definite problem with no interest placed in the intermediate stages; (2) The system is intended for carrying out a maximum number of all commands applied to its input. For both restorable and nonrestorable systems, formulas are developed for the criterion of probability of fulfilling its task by the system. Also, formulas for the mathematical expectation of a part of the commands fulfilled by the system over a certain time are derived. Both cases with and without parallel redundancy are considered. Orig. art. has: 1 figure and 56 formulas.

ASSOCIATION: none

SUBMITTED: 24Feb64 ENCL: 00 SUB CODE: IE, DP

NO REF SOV: 001 OTHER: 000

Card 2/2

DEGTYAREV, B.M.

Water-discharge coefficient of soils with low permeability.
[Trudy] NIIOSP no.35:99-103 '59. (MIRA 12:12)
(Soil percolation) (Water, Underground)

MARIUPOL'SKIY, G.M.; ARUTYUNYAN, R.N.; DEGTYAREV, B.M.

Using vacuum techniques in draining and stabilizing soils. Osn. fund.i mekh.grun. 2 no.2:3-5 '60. (MIRA 13:8)
(Soil stabilization)
(Drainage)

DEGTYAREV, B.M.

Selecting rated values of the water discharge coeffeicent in
planning the reclamation of land. Osn., fund. i mekh. grun.
3 no.5:19-20 '60. (MIRA 13:9)
(Reclamation of land)

DEGTYAREV, B.M.

Experimental study on draining soil by horizontal vacuum drainage.
Osn., fund. i mekh. grun. 3 no.4:9-10 '61. (MIRA 14:8)
(Drainage)

DEGTYAREV, B.M.

Percolation and capillary properties of soils under vacuum.
Inzh.-fiz.zhur. 5 no.12:54-58 D '62. (MIRA 16:2)
(Soil mechanics)

DEGTYAREV, B.M.

Experience with radioactive radiations in the study of soil drainage by a gravity vacuum drain. [Trudy] NII osn. no.48: 91-100 '62. (MIRA 16:8)
(Gamma rays--Industrial applications) (Drainage)

DEGTYAREV, D.D.

[redacted]

Stratigraphic role of corals from the soil and roof of the Pashiya strata in the western slope of the Central Urals. Trudy Gor.-geol. inst. no.24:156-165 '56. (MIRA 10:1)
(Ural Mountains--Corals, Fossil)

DEGTYAREV, D.D.

New species of corals from Eifelian sediments in the Tobol Valley in the southern Urals. Trudy Gor.-geol. inst. no. 28:73-75 '57.
(MIRA 11:10)

(Tobol Valley--Corals, Fossil)

DEGTYAREV, D.D.

Importance of certain Devonian corals in the middle of the Ay River in the southern Urals. Trudy Gor.-geol. inst. no. 28:77-88 '57. (MIRA 11:10)

(Ay Valley--Rugosa)

GLADKOVSKIY, A.K.; DEGTYAREV, D.D.; SHURYGINA, M.V.

Origin of Devonian bauxites in the Urals. Nauch. dokl. vys. shkoly; geol.-geog. nauki no.3:134-138 '58. (MIRA 12:1)

1. Sverdlovskiy gornyy institut.
(Ural Mountains--Geology, Stratigraphic)
(Bauxites) (Petrology)

DEGTYAREV, D.D.

New Lower Carboniferous rugosa in the Southern Urals. Paleont. zhur. no.1:48-53 '65. (MIRA 18:4)

1. Sverdlovskiy gornyy institut imeni Vakhrusheva.

DEGTYAREV, D.F.

The VO-1000 unit for the reception, cooling and conservation of milk.
Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform.
no.12:73-75 '63. (MIRA 17:3)

DEGTYAREVA, E.V.

Growth of corundum crystals in the process of caking. Dokl.
AN SSSR 165 no.2:372-375 N '65. (MIRA 18:11)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov.
Submitted April 9, 1965.

DEGTYAREVA, E.V.; KAYNARSKIY, I.S.; KARYAKIN, L.I.; ALEKSEYENKO, L.S.

Dielectric properties of corundum ceramics and its microstructure. Izv. AN SSSR. Neorg. mat. 1 no.5:816-822 My '65. (MIRA 18:10)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov, Khar'kov.

KAYNARSKIY, I.S.; DEGTYAREVA, E.V.; ALEKSEYENKO, L.S.

Effect of modifying additions on the dielectric properties of corundum ceramics. Izv. AN SSSR. Neorg. mat. 1 no.5:810-815 My '65. (MIRA 18:10)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov, Khar'kov.

1. DEGTYAREV, F.
2. USSR (600)
4. Butter
7. Increasing the output of sweet cream butter in small packages. Mol prom. no. 10, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

DEGTYAREV, F.

Steam-power plant LPU-1, Mol. prom. 13, No 2, 1952.

DEGTYAREV, F.G.; SEMENOVA, V.F.; DOLGOVSKIY, V.V., otv. za vyp.;
ANISIMOVA, V.V., otv. za vyp.; MANVELOVA, Ye.S., tekhn.red.

[New equipment of canned milk plants in foreign countries]
O novom oborudovanii molochnokonservnykh zavodov za rubezhom. Moskva, 1962. 21 p. (MIRA 16:4)

1. Moscow. TSentral'nyy institut nauchno-tekhnicheskoy informatsii pishchevoy promyshlennosti.
(Canning industry--Equipment and supplies)

DEGTYAREV, F.G.; BUTIN, V.I.; BOGDANOVA, Ye.A.; BOGDANOVA, G.I.; SHERSHNEVA, V.I.; MILYUTINA, L.L.; DEMUROV, M.G., kand. sel'khoz. nauk, spets. red.

[Recent developments in the technology of milk products; textbook] Novoe v tekhnologii molochnykh produktov; uchebnoe posobie. Moskva, Vses. zaochnyi tekhnikum miasnoi i molochnoi promyshl., 1964. 187 p. (MIRA 17:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut molochnoy promyshlennosti.

DEGTYAREV, G.

USSR/Chemical Technology. Chemical Products and Their Application -- Food industry, I-28

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 6724

Author: Miskaryan, N., Royberg, V., Degtyarev, G.

Institution: None

Title: Efficient Method of Bleeding Sheep and Goats

Original Publication: Myasnaya industriya SSSR, 1956, No 2, 13-14

Abstract: While the animal is being carried by the conveyor belt in vertical position, a double-edged knife is driven into the lower part of the neck extending within the chest cavity to the level of the 1-2nd rib. Then the knife is twisted to sever the common trunks of the carotids and jugular veins. At the level of the 2-3rd rib the common humerocephalic trunk can be cut. Beyond the partition of the trough that carries off the first portion of the blood, an incision is made in the neck, extending from the lower jaw connection to the lower surface of the first vertebra of the neck. By this bleeding procedure

Card 1/2

USSR/Chemical Technology. Chemical Products and Their Application -- Food industry,
I-28

Abst Journal: Referat Zhur - Khimija, No 2, 1957, 6724

Abstract: a maximum amount of clean blood is obtained (700-2,000 ml depending on the size and weight of the animal, 250 ml more on the average a more complete bleeding is attained and the lungs of the animals can be utilized for use as food.

Card 2/2

DEGTYAREV, G.

MISKARYAN, N., kandidat veterinarnykh nauk; ROYTBERG, V., vetvrach;
DEGTYAREV, G.

Bleeding small livestock. Mias.ind.SSSR 28 no.4:23 '57. (MLRA 10:7)

1. Ulan-Udenskiy myasokombinat (for Degtyarev).
(Blood) (Slaughtering and slaughterhouses) (Albumin)

L 6373-66

ACC NR: AP5026773 SOURCE CODE: UR/0286/65/000/017/0055/0056

12

AUTHOR: Klimov, N. I.; Degtyarev, G. A.; Leonov, V. S.

ORG: none

TITLE: An artificial leg. Class 30, No. 174322

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 17, 1965, 55-56

TOPIC TAGS: prosthetics, prosthesis, artificial limb

ABSTRACT: This Author's Certificate introduces an artificial leg which contains a thigh casing, a tubular shin casing, ankle and foot. The mechanism is covered with an elastic material. The ankle is made in the form of two specially geared sections fixed with respect to one another by a tie bolt so that the foot can be adjusted to heels of varying height. The foot is equipped with an elastic toe section and has a hinged plate with a notch which takes the cylindrical head of a screw fastened into the insole.

UDC: 615.477.22

Card 1/2

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L 6373-66

ACC NR: AP5026773

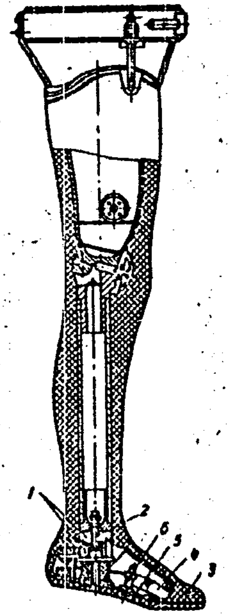

Fig. 1. 1--geared sections; 2--tie bolt; 3--elastic toe; 4--plate; 5--insole; 6--screw

SUB CODE: LS/ SUBM DATE: 26Aug64/ ORIG REF: 000/ OTH REF: 000

Card 2/2

DEGTYAREV, G.I.; EDEL'SON, A.M.

Electric metallization practice. Stan.i instr. 28 no.4:32-34 Ap '57. (MLRA 10:5)

(Metal spraying)
(Electric machinery)

DEGTYAREV, G.I

137-58-1-1183

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 159 (USSR)

AUTHORS: Edel'son, A. M., Degtyarev, G. I.

TITLE: Repair of Sleeves by a 3-wire Metallizing Unit (Remont vtulok trekhprovolochnym metallizatsionnym apparatom)

PERIODICAL: Mashinostroitel', 1957, Nr 5, pp 35-36

ABSTRACT: Bibliographic entry

1. **Metal sleeves--Salvage methods**

Card 1/1

DEGTYAREV, G.M.; MEN'SHOV, Yu.A.; ALEMASOV, B.Ye.

Characteristics of the heat balance of the northwestern part of the Atlantic Ocean in the summer of 1960. Izv. AN SSSR. Ser. geofiz. no.7:965-970 Jl '62. (MIRA 15:7)
(Atlantic Ocean--Ocean temperature)

L 18371-63 EWT(1)/FCC(w)/BDS/ES(v) AFFTC/ESD-3 Pi-4/Pe-4/Pq-4
ACCESSION NR: AP3003802 GW S/0050/63/000/007/0044/0046
70

AUTHORS: Men'shov, Yu. A. (Kaliningrad); Degtyarev, G. M.

TITLE: Effective radiation of the ocean's surface

SOURCE: Meteorologiya i gidrologiya, no. 7, 1963, 44-46

TOPIC TAGS: effective radiation, nocturnal effective radiation, absolute humidity

ABSTRACT: Because of the meagerness of actual measurements and because of the considerable error introduced by existing methods of measuring, the authors have sought a method of computing effective radiation on the ocean by indirect methods. They computed values of effective radiation by means of 4 empirical formulas proposed by various investigators, compared the results with actual measurements (obtained with a pyrgeometer and a technique described by S. M. Popov and S. A. Ryazanov (Znacheniye effektivnogo izluchiniya v teplovom balanse okeana. Izv. AN SSSR, seriya geograf., No. 2, 1961). By introducing refinements, the authors derived a new formula

$$E = \delta\sigma T_w^4 (0{,}3573 - 0{,}0526\sqrt{e})(1 - cN^2)\ \text{кал/см}^2\text{мин} \ldots$$

Card 1/2

L 18371-63
ACCESSION NR: AP3003802

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where δ is the coefficient of grayness, σ the Stefan-Boltzmann constant, T_w the temperature of the underlying water surface (°K), e the absolute humidity of the air (mm), N the total amount of cloud cover (in scale divisions), and c = 0.63 (for latitude 35°). Results obtained by this formula are in closer accord with actual measurements than any by earlier formulas. Orig. art. has: 2 tables and 5 formulas.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 12Aug63

ENCL: 0C

SUB CODE: PH

NO REF SOV: 004

OTHER: 00C

Card 2/2

[illegible], [illegible]; [illegible]KIN, A.A.; MEN'SHOV, Yu.A.

Radiation reflected from the surface of the open ocean. Izv. AN SSSR Ser. geofiz. no.10:1578-1583 O '63.

(MIRA 17:11)

DEGTYAREV, G. V.

"On the surgical treatment of intestinal stones in horses," Nauch.-prakt. raboty voyenvet. sluzhby, Moscow, 1948, p. 39-48

SO: U-3850, 16 June 53, (Letopis 'Zhurnal 'nykh Statey, No. 5, 1949).

DEGTYAREV, G.V., dotsent (Dagestanskaya ASSR); PETROVA, K.F., aspirant (Dagestanskaya ASSR) GADZHIBALAYEVA, F.L., veterinarnyy vrach (Dagestanskaya ASSR)

Frequency and forms of eye lesions in cattle and horses with leptospirosis. Veterinariia 42 no.5:49-52 My '65.

(MIRA 18:6)

DEGTYAREV, G.Ye., general-polkovnik artillerii

Maintain a closer contact with the fighting men. Artill. zhur.
no.5:21-23 My '58. (MIRA 11:6)
(Artillery--Periodicals)

DEGTYAREV, I.

Our work commission. Sov. profsoiuzy 18 no.3:24-26 F '62. (MIRA 15:3)

1. Predsedatel' proizvodstvenno-massovoy komissii Severskogo metallurgicheskogo zavoda.

(Steel industry)

DEGTYAREV, Iosif Anufriyevich, polkovnik; KREKSHIN, N.A., podpolkovnik,
red.; SOLOMONIK, R.L., tekhn. red.

[Combat operations in winter] Boevye deistviia zimoi. Moskva,
Voen.izd-vo M-va obor.SSSR, 1961. 68 p. (MIRA 14:12)
(Winter warfare)

24(6), 24(3)

AUTHORS:	Kirenskiy, L. V., Degtyarev, I. F.	SOV/56-35-3-4/6
TITLE:	On the Temperature Stability of the Domain Structure in Iron Silicate Crystals (O temperaturnoy ustoychivosti domennoy struktury v kristallakh kremnistogo zheleza)	
PERIODICAL:	Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 3, pp 584 - 586 (USSR)	
ABSTRACT:	In the present paper the authors speak about the investigations of 3% iron silicate within the range of temperature of 20-700°C by means of the meridian magnetooptical nuclear effect. Figure 1 is a schematical representation of the arrangement used for the illustration of the domain structure by means of the meridian effect. Figure 2 shows a scheme of the entire experimental device. An iron silicate monocrystal shaped in form of a small plate having the measurements 25.4.0,3 mm^3 in the (110) plane was investigated. The sample was tempered under a pressure of 10^{-3} torr at a temperature of about 1000°C for three hours. The	

Card 1/3

On the Temperature Stability of the Domain Structure in Iron Silicate Crystals SOV/56-35-3-4/61

inertialess experimental arrangement made it possible to carry out correct investigations also in the case of rapid variations of the magnetic field and the elastic tensions, particularly because the optical arrangement was such that both photographic- and cinematographic pictures could be taken. Figure 4 shows the photoreproductions of various domain structures observed (normal, without magnetic field) at 20, 100, 200, 300, 400, 500, 680 and 700°C. Figure 5 shows the variation of the domain structure in the presence of a field, viz. for H=0, H=15 Oe H=25 Oe and H=60 Oe. The results obtained show that for the (110) plane the domain structure is very stable within the temperature interval investigated. There are 4 figures and 7 references, 3 of which are Soviet.

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya Akademii nauk SSSR (Physics Institute of the Siberian Department of the Academy of Sciences USSR)

Card 2/3

24(3)

AUTHORS: Kirenskiy, L. V., Savchenko, M. K., Degtyarev, I. F. SO7/56-37-3-5/62

TITLE: On Magnetization Processes in Ferromagnetic Substances

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 3(9), pp 616 - 619 (USSR)

ABSTRACT: It was the aim of the present paper experimentally to investigate the dynamics of the domain structure during magnetization; the authors worked with silicon iron crystals with a silicon content of 3%; the samples had the shape of plates (30×6 mm^2) or disks (20 mm diameter), the thickness of the samples was 0.3 mm or less. The surface of the samples coincided exactly or nearly with the (110) plane, the longitudinal side of the plates with the [001]-direction. The samples were vacuum-tempered at 1000°C for 2-3 hours, after which they were slowly cooled down in the furnace and electropolished. The change of the domain structure in the magnetic field in the case of growing H was investigated by the method of powder figures and by the method of the meridional magneto-optic Kerr effect. For visual and photographic observation the samples were covered with a uniform iron oxide layer; by means of the

Card 1/3

On Magnetization Processes in Ferromagnetic Substances SOV/56-37-3-5/62

former method domain structure observation was carried out simultaneously on opposing sides of the sample by means of two MIM-6-type microscopes. The results obtained are shown by numerous photographs. Thus, figure 1 shows 20 photos of the change of the domain structure in the case of varying field voltage ($\vec{H}$ forms an angle of 55° with the [100] - direction). The H-values are between 0 and 290 Oe. Figure 2 in 28 photographs shows the same for $\vec{H} \perp [100]$ and up to H= 415 Oe, and figure 3 shows in a growing magnetic field the variation of the domain structure on opposing crystal surfaces (10 photographs). It was found that, in general, magnetization causes a shift of inter-domain boundaries, a structural variation, a rotation of the magnetization vector towards the field direction, as well as a paraprocess. The process of rotation closes the process of technical magnetization, and the process of the shifting of boundaries precedes the change of domain structure. The principle part is played by the reconstruction of the domains, which is accompanied by a large number of Barkhausen-jumps. There are 3 figures and 7 references, 5

Card 2/3

of which are Soviet.

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Physics of the Siberian Branch of the Academy of Sciences, USSR)

SUBMITTED: March 31, 1959

24(3)

SOV/20-128-2-18/59

AUTHORS: Kirenskiy, L. V., Savchenko, M. K., Degtyarev, I. F.

TITLE: On Industrial Magnetization of Ferromagnetics

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 2, pp 288-290 (USSR)

ABSTRACT: According to modern concepts, industrial magnetization consists in a shift of the boundaries between the domains and rotation. Investigations of the variation in the domain structure, however, showed that the process of magnetization usually cannot be described only by translation and rotation. Besides these two processes, an additional process was frequently found which may be reduced to the re-formation of the domain structure. Rotation completes industrial magnetization, and the boundaries are shifted before re-formation of the domain structure. In this article the authors report on the above re-formation. Experiments were made by means of iron crystals with a silicon content of 3%. The samples had a diameter of 20 mm and a thickness of 0.3 mm and less. The surface of the samples agreed with the crystallographical plane (110). They were annealed in vacuum for two or three hours, then slowly cooled

Card 1/3

and electrically polished. The variations in the domain structure within a magnetic field of rising strength were investigated with the help of the powder pattern and the magneto-optical Kerr effect. 24 figures illustrate the structure of domains determined by the magneto-optical method on magnetization in various directions of the sample plane. In the absence of a field, the original pattern is composed of parallel light and dark stripes. The latter correspond to the domains which are magnetized along and opposite to the horizontal light axis [001]. On magnetization the domain structure varies differently in the individual directions. On magnetization along the light axis only a shift of the boundaries by 180° is observable. If just the same sample is magnetized toward the light axis at an angle of 55°, primarily a widening of the light stripes is visible at field strengths of up to 100 oersteds, i.e. a shift of the boundaries. At field strengths of from 100 to 200 oersteds, the domain structure is re-formed. Visual observation clearly indicates that this is an abrupt variation. Further increase to 300 oersteds shifts the boundaries between the domains of the new structure. A variation in the domain structure on magnetization at an angle of 90° toward the light axis is still more complicated, i.e. in the direction [110]. In this case, practically no shift is recorded. At field strengths of up to 90 oersteds, the domain structure practically does not vary. At further increase in the field strength (e.g. from 90 to 200 oersteds), the structure changes to produce a new kind of domain in the form of intermittent stripes. Still further increase of field strength results in a subdivision of the domains, and the pattern assumes the shape of curved stripes in the main direction along the axis [110]. At decreasing field strength, the process develops [illegible] the other way round. Magnetization by re-formation of the domain structure proceeds the more strongly the nearer [illegible] the angle to 90° between the directions of the light axis and the magnetizing field. There are 2 figures and 4 Soviet references.

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya Akademii nauk SSSR (Physics Institute of the Siberian Branch of the Academy of Sciences, USSR)

PRESENTED: May 22, 1959, by A. V. Shubnikov, Academician

SUBMITTED: May 14, 1959

Card 3/3

DEGTYAREV, I. F

71

PHASE I BOOK EXPLOITATION SOV/5526

Vsesoyuznoye soveshchaniye po magnitnoy strukture ferromagnetikov, Krasnoyarsk, 1958.

Magnitnaya struktura ferromagnetikov; materialy Vsesoyuznogo soveshchaniya, 10 - 16 iyunya 1958 g., Krasnoyarsk (Magnetic Structure of Ferromagnetic Substances; Materials of the All-Union Conference on the Magnetic Structure of Ferromagnetic Substances, Held in Krasnoyarsk 10 - 16 June, 1958) Novosibirsk, Izd-vo Sibirskogo otd. AN SSSR, 1960. 249 p. Errata slip inserted. 1,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut fiziki Sibirskogo otdeleniya. Komissiya po magnetizmu pri Institute fiziki metallov OFMN.

Resp. Ed.: L. V. Kirenskiy, Doctor of Physical and Mathematical Sciences; Ed.: R. L. Dudnik; Tech. Ed.: A. F. Mazurova.

PURPOSE: This collection of articles is intended for researchers in ferromagnetism and for metal scientists.

Card 1/11

71

COVERAGE: The collection contains 38 scientific articles presented at the All-Union Conference on the Magnetic Structure of Ferromagnetic Substances, held in Krasnoyarsk in June 1958. The material contains data on the magnetic structure of ferromagnetic materials and on the dynamics of the structure in relation to magnetic field changes, elastic stresses, and temperature. According to the Foreword the study of ferromagnetic materials had a successful beginning in the Soviet Union in the 1930's, was subsequently discontinued for many years, and was resumed in the 1950's. No personalities are mentioned. References accompany individual articles.

TABLE OF CONTENTS:

Foreword 3

Shur, Ya. S. [Institut fiziki metallov AN SSSR - Institute of Physics of Metals, AS USSR, Sverdlovsk]. On the Magnetic Structure of Ferromagnetic Substances 5

Magnetic Structure (Cont.)

D'yakov, G. P. [Fizicheskiy fakul'tet MGU - Physics Department of the Moscow State University]. Accounting for the Domain Structure in the Calculation of Magnetostriction 21

Kirenskiy, L. V., and M. K. Savchenko [Institut fiziki SO AN SSSR - Institute of Physics, Siberian Branch AS USSR, Krasnoyarsk]. On the Spatial Distribution of the Domain Structure in Ferromagnetic Substances 25

Druzhinin, V. V., and T. I. Prasova [Verkh-Isetskiy metallurgicheskiy zavod - Verkh-Isetskiy Metallurgical Plant]. On the Application of the Powder-Figure Method to the Study of the Magnetic Properties of Transformer Steel 29

Kirenskiy, L. V., and I. F. Degtyarev [Institute of Physics, Siberian Branch AS USSR, Krasnoyarsk]. Temperature Dependence of the Domain Structure in Crystals of Iron Silicide 33

Magnetic Structure (Cont.) SOV/5526

Zaykova, V. A., and Ya. S. Shur [Institute of Physics of Metals AS USSR, Sverdlovsk]. Effect of Elastic Stresses on the Magnetic Structure of Crystals of Iron Silicide 39

Sbitnikova, I. S., G. V. Spivak, and I. M. Sarayeva [Physics Department of the Moscow State University]. Temperature Changes of the Magnetic Microstructure of Ferromagnetic Substances Detected With the Aid of a Secondary Electron Emission 41

Degtyarev, I. F., and V. D. Dylgerov [Institute of Physics, Siberian Branch AS USSR, Krasnoyarsk]. Dynamics of the Domain Structure in Rotating Magnetic Fields 47

Krinchik, G. S. [Physics Department of the Moscow State University]. New Magneto-Optical Method of Studying the Domain Structure of Ferromagnetic Substances 51

Card 4/11

S/196/61/000/010/003/037
E194/E155

AUTHORS: Degtyarev, I.F., and Dylgerov, V.D.

TITLE: The dynamics of the domain structure in rotating magnetic fields

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.10, 1961, 2, abstract 10B 6. (Symposium "The magnetic structure of ferromagnetics", Novosibirsk. Siberian Division AS USSR, 1960, 47-49)

TEXT: The dynamics of the domain structure was investigated in single crystals of transformer steel on the plane (110) in rotating magnetic fields using magneto-optical and powder methods. It was shown that a complicated rearrangement of domains occurs in specimens of normal thickness (0.5 - 0.3 mm), but in specimens less than 0.1 mm thick only a displacement of the 180-degree boundaries is observed. 1 literature reference.

ASSOCIATION: In-t fiziki Sibirskogo otdeleniya AN SSSR, Krasnoyarsk (Physics Institute of the Siberian Department, AS USSR, Krasnoyarsk)

Card 1/1

[Abstractor's note: Complete translation.]

S/070/60/005/005/013/017
E132/E360

AUTHORS: Dylgerov, V.D. and Degtyarev, I.F.

TITLE: On Peculiarities in the Development of the Domain Structure in Ferromagnetic Crystals as Shown by Different Methods

PERIODICAL: Kristallografiya, 1960, Vol. 5, No. 5, pp. 809 - 811

TEXT: Powder and magneto-optical methods have been used to study certain types of the superficial configurations of the domains on the surface near to the crystallographic plane 110 in crystals of transformer steel. The reason for the study was to compare the methods based on different physical principles. Discs 0.3 mm thick were cut from coarsely crystalline sheets of transformer steel containing 3% Si. The surface was carefully examined to identify parts with the most characteristic domain structure and these were photographed. A region showing a boundary where domains with orientations 180° apart meet is shown as seen by the two methods. The powder method has the advantage that it permits a large optical magnification to be used for photography, which so far cannot be achieved with the other method. The

Card 1/2

S/070/60/005/005/013/017
E132/E360

On Peculiarities in the Development of the Domain Structure in Ferromagnetic Crystals as Shown by Different Methods

magneto-optical method has advantages not possessed by the other. There 3 figures and 3 references: 1 Soviet and 2 English.

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya AN SSSR (Institute of Physics of the Siberian Department of the AS USSR)

SUBMITTED: December 15, 1959

Card 2/2

22068

S/200/61/000/005/001/002
D227/D303

9.7140 (1164)

AUTHORS: Kirenskiy, L. V., Buravikhin, V. A., Kan, S. V., and
Degtyarev, I. F.

TITLE: Domain structure of thin ferromagnetic films

PERIODICAL: Akademiya nauk SSSR. Sibirskoye otdeleniye.
Izvestiya, no. 5, 1961, 3-9

TEXT: In recent years, a series of theoretical and experimental
investigations have been carried out on the domain structures
and the structures of domain shells in thin ferro-magnetic films
by T. Kaczer (Ref. 4: K Doménove strukturé tenkých ferromagnetyc-
kych vrstev, českolovenský časopis pro fysiku, 7, 516 (1957),
I. N. Shklyarevskiy (Ref. 18: K voprosu ob izmerenii tolshchin
tonkikh plenok s pomoshch'yu liniy ravnogo khromaticheskogo
poryadka, t. "Optika i Spektroskopiya", 5, 617 (1958), L. V.
Kirenskiy, I. F. Degtyarev (Ref. 19: O temperaturnoy ustoychivosti
domennoy struktury v kristallakh kremnistogo zheleza, ZhETF., 35,

X

Card 1/8

22068

S/200/61/000/005/001/002
D227/D303

Domain structure...

3, (9), 584 (1958)), R. M. Moon (Ref. 15: Internal structure of cross-tied walls in thin Permalloy films through high-resolution Bitter techniques, j. Appl. Phys., 30, 82, 1959), I. B. Gomi, Y. Odani (Ref. 16: Chain wall in Permalloy Thin Films, j. of the Physical society of Japan, 15, 3, 535, 1960) and C. E. Fuller (Ref. 17: Domains patterns and reversals by wall movements of thin films of iron and nickel iron, j. Phys., et radium, 20, No. 2-3, 310, 1959). The study of thin films opens up the possibility of applying known microscopic methods of investigation in the study of microscopic properties of matter. Investigation of ferro-magnetic properties of thin films could be useful in clarifying problems of ferro-magnetic theory and here provide useful data for massive ferro-magnetic samples. Detailed study of space distribution of self-magnetism in thin ferro-magnetic films appears an important stage on the way to developing the theory of technical magnetization. The practical study of the

Card 2/8

22068

S/200/61/000/005/001/002
D227/D303

Domain structure...

properties of thin ferro-magnetic films could lead to perfecting the "memory" elements of modern computers. Mainly due to their comparatively simple production and better rate of demagnetization they have important advantages over ferrite cores in computers. The study of the configuration of the domain structure of ferro-magnetic films and its dependability on the technology of preparation, chemical composition and thickness, and also the change of domain structure in the magnetic field, could provide the best choice of "memory" elements of computers and electronic machines. Missing from most of the work already done in the study of domain structure of thin ferro-magnetic films, is the effect of technology of film preparation, film thickness on the configuration of domain structure and also film changes in the process of magnetization and demagnetization. The present work deals with the effect of the technology of preparation and thickness of the film of alloy consisting of 80% nickel, 17% iron, and 3% molybdenum on the configuration of their domain

Card 3/8

22068

S/200/61/000/005/001/002
D227/D303

Domain structure...

structure as well as the change in film domain structure of this alloy and also of the alloy containing 50% nickel, 50% iron in the magnetic field. To prepare ferromagnetic films a vacuum device was used, whose diffusion pump yields a vacuum aggregate VA-05-1. Films were obtained by melting the above-mentioned alloys in a tungsten crucible and developing films on optically polished glass having the form of a rectangle of 10 x 40 mm, 8 x 36 mm, and also on discs of 2 to 8 mm diameter. The films were placed in a magnetic field produced by a pair of Helmholtz coils. The direction of the field was in the plane of the films. The films of alloy Fe-Ni-Mo were prepared as follows; (a) Base temperature of 350°C., in a magnetic field of 125, 100, 75, 50, 25 and 4 oersteds; (b) Base temperature 420, 350, 150 and 50°C., in a field of 100 oersteds; (c) The films of alloy Fe-Ni-Mo of different thicknesses from 6150 Å to 140 Å, and also films of alloy Fe-Ni were prepared at base temperatures up to 350°C and in a field of 100 oersteds. The films prepared in the magnetic

Card 4/8

22068
S/200/61/000/005/001/002
D227/D303

Domain structure...

field possessed uniform anistrophy along the axis which corresponded to the direction of applied magnetic field. The thicknesses of the films were measured by the universal monochrometer UM-2 by means of the lines of uniform chromatic order. Domain structure was investigated by the method of powder figures with a magnification of 280 on the MBI-6 microscope and also by the method of Kerr's meridian magneto-optical effect as quoted in Ref. 19 (Op. cit.). The powder method enables the study of domain structure at high magnification, the details of boundaries and domains, and it possesses appreciable inertness. Hence for the study of change of domain structure with a rapidly changing field, the non-inert method of Kerr's meridian magneto-optical method is used which unfortunately does not enable study at high magnification. To use this method, the ferro-magnetic film heated to 250°C, was covered in vacuum with a thin dielectric layer of zinc sulphide. This decreases the destructive effect of temperature on the anisotropy of films and during covering

Card 5/8

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22068

S/200/61/000/005/001/002
D227/D303

Domain structure...

with sulphide a magnetic field of 70 oersteds was applied parallel to the direction of the field used during the evaporation of metal. The dielectric layer appreciably increases the deflection angle of plane polarized light and this increases the contrast between adjacent domains making visual inspection possible. Subsequent work over three months has not detected any change in the behavior of domains and the zinc sulphide layer. The ferro-magnetic films, prepared on the basis of heating above 200°C possessed a time-stable domain structure, mechanical strength and chemical stability. The domain structure of ferro-magnetic films depends largely on the demagnetization conditions. Increasing the angle between the demagnetizing field and the magnetization axis, the structure becomes very fine, the direction of domain boundaries usually following the magnetization axis. The domain structure also depends on the demagnetization rate of films. The most correct structure is obtained at slow demagnetization; a high demagnetization rate gives large domains and their structures are less con-

Card 6/8

22068

S/200/61/000/005/001/002
D227/D303

Domain structure...

trollable. A decrease in the thickness of ferro-magnetic films gives rise to a tendency to bend the boundaries and to give boundaries with cross connections. The study of the magnetization process indicates that it proceeds as follows: (a) For the thickness (about 500-700 Å) and for dissimilar films, the domains grow along the orientation of the applied field, with clear-cut boundaries; (b) corresponding films with thicknesses greater than 1000 Å change in domain structure, occur along the axis of the magnetizing field and a mixing of boundaries takes place. When magnetizing at an angle of 45°, it could happen that the motion of boundaries does not occur, but inside the poorly oriented domains, the bending of magnetic vectors results, gradually gripping all domains; on the other hand magnetizing at an angle of 90°, the boundary mixing does not take place and magnetic vectors turn smoothly toward the direction of the field. The reverse magnetization process usually starts with clearly defined nuclei, the growth of which is analogous to the magnetization process. There are 9 figures and 19 references: 3 Soviet

Card 7/8

22068

S/200/61/000/005/001/002
D227/D303

Domain structure...

bloc and 16 non-Soviet-bloc.. The references to the English-language publications read as follows: I. By. Gomi, I Odani, Chain wall in Permalloy Thin Films, j. of the Physical society of Japan, 15, 3, 535, 1960; C. E. Fuller, Domains patterns and reversals by wall movements of thin films of iron and nickel iron, j. Phys., et radium, 20, No. 2-3, 310, 1959; M. Prutton, The observation of domain structure in magnetic thin films by means of the Kerr magneto-optia effect, Philos. Mag., 4, No 45, 1063, 1959; and H. W. Fuller, H. Rubinstein, Observations made on domain walls in thin films, j. Appl. Phys., 30, 84, 1959.

ASSOCIATION: Institut fiziki, Sibirskogo otdeleniya AN SSSR gos. Pedinstitut, Krasnoyarsk (Institute of Physics, Siberian Section, AS USSR, State Ped. Institute, Krasnoyarsk)

SUBMITTED: August 12, 1960

Card 8/8

25792
S/048/61/025/005/006/024
B104/B201

24,3600

AUTHORS: Kirenskiy, L. V., Kan, S. V., and Degtyarev, I. F.

TITLE: Study of the magnetic structure of thin ferromagnetic films with the aid of the magnetooptical Kerr effect

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 25, no. 5, 1961, 584-591

TEXT: The present investigation was the subject of a lecture delivered at a symposium on thin ferromagnetic films (Krasnoyarsk, July 4 to 7, 1960). The development of magnetooptical methods for the observation of domain structures is fairly recent (H.J. Williams et al., Phys.Rev., 82, 119 (1951); C. Fowler et al., Phys.Rev., 94, 52 (1954)). M. Prutton (Philos. Mag., 4, 45, 1063 (1959)) has indicated a method and an apparatus for the visual observation of ferromagnetic films. No usable results obtained by this method have been, however, published heretofore. The deficiencies of the magnetic powder methods used for most of the studies in this field are enumerated, and next, the studies conducted by the present authors on the magnetic structure of thin ferromagnetic films.

Card 1/4

25792
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Study of the magnetic structure...

using the magnetooptical longitudinal Kerr effect, are described. Nickel alloy films (80% Ni, 17% Fe, 3% Mo) were sputtered in vacuum (10^{-6} mm Hg) onto polished glass backings. The uniaxial magnetic anisotropy while producing the films was brought about by a 100-oe field oriented in the film plane. The glass backings had temperatures up to 350°C. For the visual observation and for photographing the domains a thin dielectric zinc sulfide layer was sputtered at 10^{-5} mm Hg, and a 30-oe magnetic field, being oriented in the same way as the one in the production of the ferromagnetic film, was applied. This layer increased the angle of rotation of the reflected plane-polarized light, whereby the contrast between the domains was augmented. The experimental setup is presented in Fig. 1. The properties of various films studied with this setup were found to differ. The directions of easiest and heavy magnetizing were determined from the domain structure of the specimens, which appeared after the films were demagnetized. When applying a field being perpendicular to the field used in the production of the film, the contrast between the domains dropped with a rise of the field strength, without the domain configuration changing noticeably, or the favorably oriented domains appeared. The authors discuss the effect of demagnetization conditions upon the domain

Card 2/4

25792
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B104/B201

Study of the magnetic structure...

structure, and the modification of the domain structure of films during the magnetizing process. To summarize: (1) A very fine domain structure appears on an increase of the angle between the direction of the demagnetizing process and the axis of easiest magnetizing of the films; (2) a structure consisting of coarse domains, differing and undefined in shape, was established in case of a fast demagnetization. A fine domain structure appeared on a slow demagnetization. A study of magnetization indicated that (1) domains grow abruptly on thin (500 - 600 Å) and nonuniform films; (2) on an increase of the film thickness and of the angle between the magnetic field and the direction of easiest magnetizing the domain boundaries are shifted uniformly in case of uniform films. In case of a magnetization in the direction of difficult magnetizing the configuration of the domains does not change, but the contrasts between the domains become weaker and disappear once saturation is attained. The contrast between the domains is restored in part when the field is disconnected; (3) if a field with the direction at 45° is applied, a brightening of dark fields (or a darkening of bright fields) will be observed. There are 7 figures and 7 references: 2 Soviet-bloc and 5 non-Soviet-bloc.

Card 3/4

25792
S/048/61/025/005/006/024
B104/B201

Study of the magnetic structure ...

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Physics of the Siberian Department, Academy of Sciences USSR), Krasnoyarskiy gos. pedagogicheskiy institut (Krasnoyarsk State Pedagogical Institute)

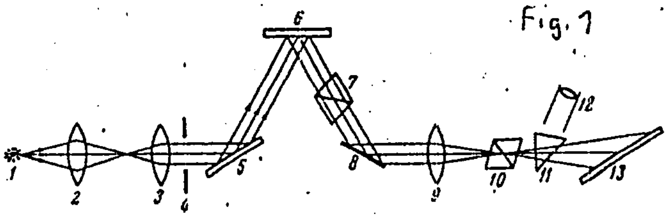

Fig. 1

Fig. 1: Scheme of optical arrangement. Legend: 1, light source; 2, condenser; 3, collimator; 4, diaphragm; 5 and 6, mirror; 7, polarizer; 8, specimen; 9, objective; 10, analyzer; 11, prism; 12, observation tube; 13, photographic film.

Card 4/4

S/058/61/000/012/061/083
A058/A101

AUTHORS: Degtyarev, I.F., Dylgerov, V.D.

TITLE: Domain-structure dynamics in rotating magnetic fields

PERIODICAL: Referativnyy zhurnal. Fizika, no. 12, 1961, 384, abstract 12E695 (V sb. "Magnitn. struktura ferromagnetikov", Novosibirsk, Sib. otd. AN SSSR, 1960, 47 - 49)

TEXT: Domain-structure dynamics on the (110) planes of single crystals of transformer steel in rotating magnetic fields were investigated by the magnetooptical and powder methods. It was demonstrated that for ordinary specimen thicknesses (0.5 - 0.3 mm), domain undergo complicated rebuilding, while in specimens $<$ 0.1 mm thick, only a process of displacement of the 180° boundaries is observed

[Abstracter's note: Complete translation]

Card 1/1

31599
S/048/61/025/012/003/022
B125/B112

24.2200(1121, 1147, 1068)

AUTHORS: Ignatchenko, V. A., Degtyarev, I. F., Zakharov, Yu. V.

TITLE: Behavior of domain structure in the magnetization process

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 25, no. 12, 1961, 1439-1444

TEXT: The domain structure of small monocrystal plates, cut in parallel to the (011) plane, is very simple. Sometimes irregular inversely magnetized wedges can be observed in domains of antiparallel magnetization. The domain structure of such monocrystals was studied theoretically.

$$\gamma_M = -\frac{1}{4\pi^2}\int_0^{2\pi} d\xi \int_0^{2\pi} d\eta \int_{-z_0/2}^{0} H_z(\xi,\eta,z)\omega(\xi,\eta)dz$$

is the energy density of the demagnetizing poles per unit area. The surface density $\omega(x,y)$ of the magnetic poles which are formed on the planes $z = 0$ and $z = -z_0$ is periodic with the periods $2\pi L_x$ and $2\pi L_y$ with respect to the x and y axes. In the case most significant in practice ($\omega(x,y)$

Card 1/5

periodic with respect to x and along y except for the interval $(-y_0/2, y_0/2)$ everywhere equal to zero)

$$\gamma_m = \frac{4\pi^2}{y_0}\int\limits_{-\infty}^{+\infty}\frac{\bar{\omega}_0(v)\,\bar{\omega}_0(-v)}{|v|}\left(1-e^{-|v|z_0}\right)dv + {} \tag{1.8}$$

$$+\frac{4\pi^2}{y_0}\sum_{-\infty}^{+\infty}{}'\int\limits_{-\infty}^{+\infty}\frac{\bar{\omega}_m(v)\,\bar{\omega}_{-m}(-v)}{Q_m(v)}\left(1-e^{-Q_m z_0}\right)dv,$$

holds with $Q_m^2(v) = v^2 + (m/L_x)^2$.

$$\gamma_m = \frac{8\pi^2}{x_0 y_0}\int\limits_{-\infty}^{+\infty}\int\limits_{-\infty}^{+\infty}\frac{\bar{\omega}(u,v)\,\bar{\omega}(-n,-v)}{R(u,v)}\left(1-e^{-R(u,v)z_0}\right)du\,dv, \tag{1.9}$$

$R^2 = u^2 + v^2$ и

$$\bar{\omega}(u,v) = \frac{1}{4\pi^2}\int\limits_{-\infty}^{+\infty}\int\limits_{-\infty}^{+\infty}\omega(x,y)\,e^{-i(ux+vy)}\,dx\,dy.$$

Card 2/5

31599
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B125/B112

Behavior of domain structure ...

holds for a crystal with finite x_0, y_0, z_0. With $z_0/L_x \gg 1$

$$\gamma_m = 2\pi\omega^2(1-q)^2 z_0 + \frac{8\omega^2}{\pi^2} D f(q),$$

(2.1)

$$f(q) = \sum_{m=1}^{\infty} \frac{1-\cos m\pi q}{m^2},$$

$$2D = d_1 + d_2, \quad q = d_2/D.$$

follows when applying the formula

$$\gamma_m = 2\pi\omega_0^2 z_0 + 2\pi L_x \sum_{-\infty}^{+\infty}{}' \frac{\omega_m \omega_{-m}}{|m|}\left(1 - e^{-P_{mn} z_0}\right),$$

$$\omega_m = \frac{1}{2\pi}\int_0^{2\pi} \omega(\xi)\, e^{-im\xi} d\xi,$$

(1.7),

Card 3/5

31599
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B125/B112

Behavior of domain structure ...

periodic only with respect to x and independent of y, to the domain structure shown in Fig. 1. The free energy of the crystal per unit volume, $F(D,q) = 2\pi\omega^2 \cdot (1-q)^2 + (8\omega^2/\pi^2 z_0)\, Df(q) + (\gamma/D) - \omega H(1-q)$, consists of the energy of the demagnetizing fields, of the limiting energy and of the energy of the external magnetic field (direct along the z-axis). The equilibrium domain structure can be described for any value of the external field H by

$$D = \frac{\pi}{\omega}\left[\frac{z_0\gamma}{8f(q)}\right]^{1/2}, \qquad (2.3)$$

$$-4\pi\omega(1-q) + f'(q)\left[\frac{8\gamma}{\pi^2 z_0 f(q)}\right]^{1/2} + H = 0. \qquad (2.4).$$

Magnetization is caused not only by diminishing the width of the unsuitably magnetized domains but also by their divergence.

$$F(D,q) = K\left(\frac{y_0}{z_0}\right) 2\pi\omega^2(1-q)^2 + \frac{8\omega^2}{\pi^2 z_0} D\Psi(D/y_0, q) + \frac{\gamma}{D} - \omega H(1-q), \qquad (2.8)$$

$$\Psi(D/y_0, q) = \frac{4}{D}\sum_{m=1}^{\infty}\frac{1-\cos m\pi q}{m^3} G.$$

Card 4/5

31599
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Behavior of domain structure ...

holds for a crystal of finite thickness. If $y_0 \approx 10^{-2}$, the following holds: $\chi_0 \approx \left[4\pi K(y_0/z_0)\right]^{-1}$ which agrees approximately with experimental data. The domain structure of such crystals as are finite in all three dimensions must be computed electronically. K. A. Kitover (Priklad. matem. i mekhan., 12, 233, 1948) is mentioned. There are 3 figures and 4 references: 2 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: C. Kittel, Rev. Mod. Phys. 21, 541, 1949; J. Goodenough, Phys. Rev. 102, 356 (1956).

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Physics of the Siberian Branch of the Academy of Sciences USSR)

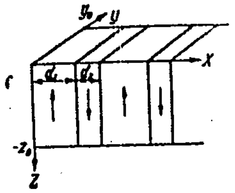

Fig. 1. Schematical drawing of domain structure.

Card 5/5

ACCESSION NR: AP4023407 S/0048/64/028/003/0559/0567

AUTHOR: Kirenskiy, L.V.; Savchenko, M.K.; Degtyarev, I.F.; Kan, S.V.; Antipin, I.P.; Tropin, Yu.D.; Edel'man, I.S.

TITLE: Domain structure of ferromagnetic crystals, films, and whiskers, and changes of the structure under the influence of different factors /Report, Symposium on Ferromagnetism and Ferroelectricity held in Leningrad 30 May to 5 June 1963/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.3, 1964, 559-567

TOPIC TAGS: crystal domain structure, film domain structure, whisker domain structure, domain structure variation, demagnetization condition domain influence, iron crystal domains, iron film asymmetric hysteresis, iron whisker domain

ABSTRACT: This paper summarizes a large amount of information concerning the domain structure of crystals, films, and whiskers, and its change under the influence of magnetizing fields, stress, temperature, and conditions of demagnetization. The topics discussed include the changes in the domain structure of silicon iron crystals during magnetization in various directions; the effect of mechanical stress on the domain structure of silicon iron crystals; the influence of mechanical stress

Card 1/3

ACCESSION NR: AP4023407

on the domain structure in the (110) and (211) faces of nickel crystals; the effect of demagnetization rate on domain size in thin cobalt films; the effect of temperature on the variation of domain structure under the influence of magnetizing fields in thin cobalt films; the variations of domain structure in thin iron films during traversal of an asymmetric hysteresis loop in a transverse field; and the domain structure on the (001) surface of iron whiskers (100 to 200 micron diameter) grown in the [110] direction. The report is illustrated with 47 reproductions of domain structure photographs. Among the different kinds of behavior of domain structure mentioned or discussed are the following. When iron crystals are magnetized in the easy direction, the process of domain wall motion stops short of saturation, and the remaining narrow unfavored domains disappear suddenly. When the magnetizing field makes a sufficiently great angle with the preferred magnetization direction, initial magnetization takes place by domain wall shift; this is followed by a restructuring of the domains, after which further wall shifting occurs. The final approach to saturation is by ordinary rotation. The herring bone or fir tree domain structure on the (110) face of nickel crystals gives way under the influence of mechanical stress to a simple structure. At greater stresses the domains disappear entirely. At still greater stresses a simple domain structure reappears, but the domains are now relat-

ACCESSION NR: AP4023407

ed to the other magnetization axis. The net result is thus a 109° rotation of the domains. The size of the domains in cobalt films increases with the rate of demagnetization by alternating field. This is related to the formation of wedge shaped domains, one within another. When a thin cobalt film is cooled from above the Curie point in a field free environment, an equilibrium domain structure is not formed. The domain structure of a thin iron film was found to change largely by wall shift during traversal of an asymmetric hysteresis loop in the presence of a constant transverse field. This is not in accord with the explanation of these asymmetric hysteresis loops given by V.V.Kobelev (Petli gisterezisa odnoosny*kh ferromagnitny*kh plenok. ITM i VT AN SSSR,M.,1961) on the basis of a model in which the magnetization was assumed to rotate uniformly. Orig.art.has: 9 figures.

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya Akademii nauk SSSR(Institute of Physics, Siberian Division, Academy of Sciences,SSSR); Krasnoyarskiy pedagogicheskiy institut (Krasnoyarsk Pedagogical Institute)

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Card 3/3

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ACC NR: AP6029136 SOURCE CODE: UR/0048/66/030/006/1068/1069

AUTHOR: Degtyarev, I.F.; Prokopenko, V.S.; Vasil'yev, G.G.

ORG: Krasnoyarsk Pedagogic Institute (Krasnoyarskiy pedagogicheskiy institut); Krasnoyarsk Agricultural Institute (Krasnoyarskiy sel'skokhozyaystvennyy institut)

TITLE: Determination of the domain wall energy in ferromagnetic films /Report, All-Union Conference on the Physics of Ferro- and Antiferromagnetism held 2-7 July 1965 in Sverdlovsk/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya. v. 30, no. 6, 1966, 1068-1069

TOPIC TAGS: ferromagnetic film, iron, Permalloy, molybdenum containing alloy, magnetic domain boundary

ABSTRACT: Domain wall energies in 1000 Å thick iron and 17 Fe-80Ni-3Mo Permalloy films, vacuum deposited at 10^{-5} mm Hg with uniaxial anisotropy induced by inclination of the substrate to the molecular beam were determined by artifically inducing in them regions of reverse magnetization with the aid of a nonuniform field and calculating the wall energy from the shape of the region by minimizing the sum of the magnetostatic energy and the wall energy. Reverse magnetization regions of two different types were obtained, depending on the field configuration. The shapes of the two types of regions were approximated for the calculations by ellipsoids and elliptic cylinders, respectively. The wall energies obtained from the regions of the different

Card 1/2

L 08769-67

ACC NR: AP6029136

3

types differed by less than 6%. The wall energies obtained for an iron film with an anisotropy field of 24 Oe, for an iron film with an anisotropy field of zero, and for an Mo Permalloy film with an anisotropy field of 11.2 Oe, were 6.8, 2.3, and 0.71 erg/cm^2, respectively. Orig. art. has: 7 formulas and 1 table.

SUB CODE: 20 SUBM DATE: 00 ORIG. REF: 000 OTH REF: 002

DEGTYAREV I.G.

YANOVSKIY, Ye.L.; DEGTIAREV, I.G.

[Paronychia and its complications; therapy and prophylaxis]
Panaritsii i ego oslozhneniia; lechenie i profilaktika. Moskva,
Medgiz, 1953. 302 p. (MLRA 7:11)
(Skin--Diseases)

DEGTYAREV, I.G., kand.med.nauk

A practical device for the surgical instrument table. Khirurgiia 33 no.9:145-146 S '57. (MIRA 11:4)

(SURGERY, appar. and instruments
device for instrument table)

DEGTYAREV, I. Ya., inzh.

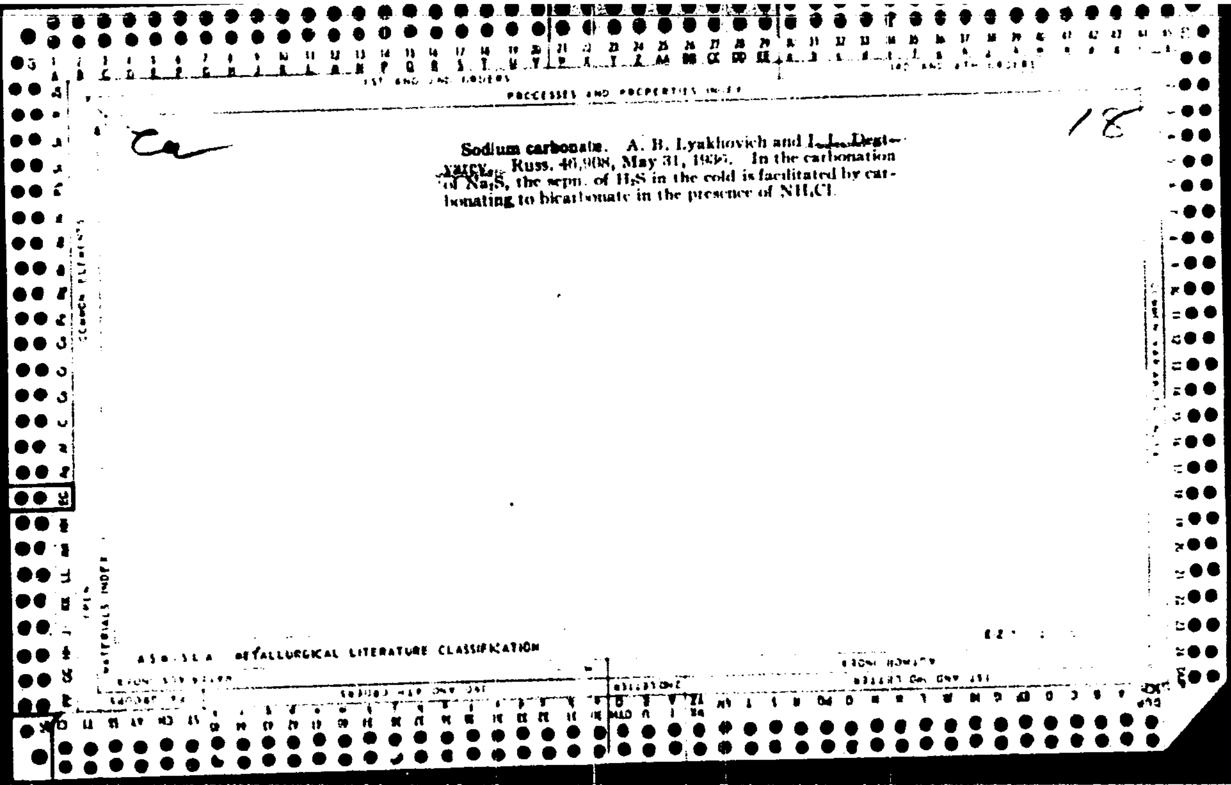
Machines for the mechanical cleaning and coiling of welding wire. Svar. proizv. no.10:39 O '62. (MIRA 15:10)

1. Moskovskiy filial Vsesoyuznogo instituta po proyektirovaniyu organizatsiy energeticheskogo stroitel'stva.

(Electric welding—Equipment and supplies)

DEGTYAREV, I.Ya., inzh.; TENISOV, M.G., inzh.

Electric slag welding of reinforcement rods. Bet.
i zhel.-bet. 8 no.8:348-354 Ag '62. (MIRA 15:9)
(Concrete reinforcement—Welding)



PROCESSES AND PROPERTIES INDEX

Ca

18

Sodium carbonate. A. B. Lyakhovich and I. L. Degtyarev. Russ. 40,908, May 31, 1935. In the carbonation of Na_2S, the sepn. of H_2S in the cold is facilitated by carbonating to bicarbonate in the presence of NH_4Cl.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Ch. Abs.

[illegible] apparatus etc.

Improved Kipp apparatus. G. M. Kvetski and I. L. Degtiarev (*Zavod. Lab.*, [illegible], 9, [illegible]).—The vol. of gas produced is measured in a burette attached to the Kipp apparatus. J. J. B.

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

24

7

Determination of small quantities of sodium carbonate in purified bicarbonate. I. L. Degtyarev and M. I. Volynets. *Zavodskaya Lab.* **10**, 582-6(1941). Prep. standard soln. by dissolving 0.2 g. of phenolphthalein in 50 ml. of alc. in a 100-ml. flask and add distd. water to the mark (soln. I). Dil. 1 ml. of I to 100 ml. with 0.1 N Na_2CO_3 (soln. II). Dil. the required quantity of II to 100 ml. with 0.1 N Na_2CO_3 soln. (soln. III). The quantity of II used for the prepn. of III depends on the expected amt. of Na_2CO_3 in the sample. Five, 10, and 20 ml. of II per 100 ml. of III are used if the expected percentages of Na_2CO_3 in $NaHCO_3$ are 0-1.5, 1.0-3.0, and 3.0-5.0%, resp. Soln. II can be kept for 24 hrs. Soln. III is good for 6 hrs. Soln. II in the colorimeter is good only for 1 hr. Pour 0.84 g. of $NaHCO_3$ (weighed to within 5 mg.) into a 100-ml. measuring flask, add water to the mark, and stopper immediately. Dissolve the $NaHCO_3$ by shaking the flask. Transfer 25 ml. of the soln. to a 35-50-ml. beaker, and add 1 ml. of soln. I. Rinse the colorimeter vessel with a small portion of the colored soln., using the remainder for the colorimetric detn. Fill the 2nd vessel of the colorimeter with soln. III, and compare the colors. Nine references.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

DEGTYAREV, I. L. : [illegible], N. S.

Analysis and control of the process in the automatic and cold-upsetting shops. Vest. mash. 31, No 12, 1951.

DEGTYAREV, I.L.

ANDREYEV, A.B.; ANTONOV, A.I.; ARAPOV, P.P., BARMASH, A.I., BEDNYAKOVA, A.B.; BENIN, G.S.; BERESNEVICH, V.V.; BERNSHTEYN, S.A.; BITYUTSKOV, V.I.; BLYUMENBERG, V.V.; BONCH-BRUYEVICH, M.D.; BORMOTOV, A.D.; BULGAKOV, N.I.; VEKSLER, B.A.; GAVRILENKO, I.V.; GENDLER, Ye.S., [deceased]; GERLIVANOV, N.A., [deceased]; GIBSHMAN, Ye.Ye.; GOLDOVSKIY,Ye.M.; GORBUNOV, P.P.; GORYAINOV, F.A.; GRINBERG, B.G.; GRYUNER, V.S.; DANOVSKIY, N.F.; DZEVUL'SKIY, V.M.,[deceased]; DREMAYLO, P.G.; DYBETS, S.G.; D'YACHENKO, P.F.; DYURNBAUM, N.S., [deceased]; YEGORCHENKO, B.F. [deceased]; YEL'YASHKEVICH, S.A.; ZHEREBOV, L.P.; ZAVEL'SKIY, A.S.: ZAVEL'SKIY, F.S.; IVANOVSKIY, S.R.; ITKIN, I.M.; KAZHDAN, A.Ya.; KAZHINSKIY, B.B.; KAPLINSKIY, S.V.: KASATKIN, F.S.; KATSAUROV, I.N.; KITAYGORODSKIY, I.I.; KOLESNIKOV, I.F.; KOLOSOV, V.A.; KOMAROV, N.S.; KOTOV, B.I.; LINDE, V.V.; LEBEDEV, H.V.; LEVITSKIY, N.I.; LOKSHIN, Ya.Yu; LUTTSAU, V.K.; MANNERBERGER, A.A.; MIKHAYLOV, V.A.; MIKHAYLOV, N.M.; MURAV'YEV, I.M.; NYDEL'MAN, G.E.; PAVLYSHKOV, L.S.; POLUYANOV, V.A.; POLYAKOV, Ye.S.; POPOV, V.V.; POPOV, N.I.; RAKHLIN, I.Ye., RZHEVSKIY, V.V.; ROZENBERG, G.V.; ROZENTRETER, B.A.; ROKOTYAN, Ye.S.; RUKAVISHNIKOV, V.I.; RUTOVSKIY, B.N. [deceased]; RYVKIN, P.M.; SMIRNOV, A.P.; STEPANOV, G.Yu, STEPANOV, Yu.A.; TARASOV, L.Ya.; TOKAREV, L.I.; USPASSKIY, P.P.; FEDOROV, A.V.; FERE, N.E.; FRENKEL', N.Z.; KHEYFITS, S.Ya.; KHLOPIN, M.I.; KHODOT, V.V.; SHAMSHUR, V.I.; SHAPIRO, A.Ye.; SHATSOV, N.I.; SHISHKINA, N.N.; SHOR, E.R.; SHPICHENETSKIY, Ye.S.; SHPRINK, B.E.; SHTERLING, S.Z.; SHUTYY, L.R.; SHUKHGAL'TER, L. Ya.; ERVAYS, A.V.;

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